WHAT IS CLAIMED IS:

1. An interferometer comprising:

a electron source for an electron beam;

a condenser lens system for condensing an electron beam emitted from the electron source to a specimen;

a specimen holder for holding a specimen irradiated by the electron beam;

a lens system for focusing an image of the specimen;

a device for observing or recording the specimen;

an upper stage biprism provided on a plane perpendicular to an optical axis and at a position of an image plane of the specimen, the image plane formed on the downstream side of the position of the specimen in the traveling direction of the electron beam on the optical axis; and

a lower stage biprism provided on the downstream side of the position of the upper stage biprism in the traveling direction of the electron beam via one of the lens or the plural lenses and on a plane parallel to the upper biprism;

wherein each of the two biprisms is capable of moving and rotating the electrodes independently, and applying a voltage independently to deflect an electron beam in one electro-optic plane including the optical axis.

2. The interferometer according to claim 1,

wherein the lower stage biprism is provided on the downstream side of a lens or lenses positioned on the downstream side of a first image plane of the specimen on the optical axis of the electron beam, and is provided on the downstream side of an image of the electron source formed with the lens or lenses.

3. The interferometer according to claim 2,

wherein the lower stage biprism is provided on the downstream side of a lens or lenses positioned on the downstream side of a first image plane of the specimen on the optical axis of the electron beam, and is provided on an image plane of the electron source formed with the lens or lenses.

4. The interferometer according to claim 1,

wherein the lower stage biprism is provided on the downstream side of a lens or lenses positioned on the downstream side of a first image plane of the specimen on the optical axis of the electron beam, and provided between one of the lenses and an image of the electron source formed with one of the lenses.

5. The interferometer according to any of claims 2 to 4,

wherein electron beams are deflected toward the optical axis of the electron beam by the upper stage

biprism and are further deflected toward the optical axis of the electron beam by the lower stage biprism.

6. The interferometer according to any of claims 2 to 4,

wherein electron beams are deflected toward the optical axis of the electron beam by the upper stage biprism, and are deflected by the lower stage biprism away from the optical axis of the electron beam.

7. The interferometer according to any of claims 2 to 4,

wherein electron beams are deflected by the upper stage biprism away from the optical axis of the electron beam and are deflected by the lower stage biprism toward the optical axis of the electron beam.

8. The interferometer according to any of claims 2 to 4,

wherein electron beams are deflected by the upper stage biprism away from the optical axis of the electron beam and are further deflected by the lower biprism further away from the optical axis of the electron beam.

9. The interferometer according to claim 1 further comprising:

a third biprism positioned between the upper stage biprism and the lens provided on the downstream side of the specimen image plane firstly formed on the optical axis of

the electron beam, the third biprism being positioned on a third plane parallel to planes on which the upper stage biprism and the lower stage biprism are placed, wherein the third biprism is capable of applying a voltage independently from the upper stage biprism and the lower stage biprism, moving the upper stage biprism and the lower stage biprism, and rotating the electrodes of the biprisms to thereby deflect electron beams in the same electro-optic plane including the optical axis to or away from which the two biprisms deflect the electron beams.

10. The interferometer according to claim 1 further comprising:

a third biprism positioned between a lens placed on the downstream side of the spacemen image plane firstly formed on the optical axis of the electron beam and an image plane of the electron source formed by the lens or between an image plane of the electron source and a specimen image plane on the optical axis secondly formed by the lens, the third biprism being positioned on a third plane parallel to planes on which the upper stage biprism and the lower stage biprism are placed, wherein the third biprism is capable of applying a voltage independently from the upper stage biprism and the lower stage biprism, moving the upper stage biprism and the lower stage biprism, and rotating electrodes of the biprisms to thereby deflect

electron beams in the same electro-optic plane including the optical axis to or away from which the two biprisms deflect the electron beams.

11. The interferometer according to claim 1 further comprising:

a third prism positioned on the second image plane of the electron source on the optical axis formed by a lens provided on the downstream side of the specimen image plane first formed on the optical axis of the electron beam, the third biprism being positioned on a third plane parallel to planes on which the upper stage biprism and the lower stage biprism are placed, wherein the third biprism is capable of applying a voltage independently from the upper stage biprism and the lower stage biprism, moving the upper stage biprism and the lower stage biprism, and rotating electrodes of the biprisms to thereby deflect electron beams in the same electro-optic plane including an optical axis to or away from which the two biprisms deflect the electron beams.

12. The interferometer according to claim 1 further comprising:

a third biprism positioned on the second image plane of the specimen on the optical axis, the third biprism being positioned on a third plane parallel to planes on which the upper stage biprism and the lower stage biprism

are placed, wherein the third biprism is capable of applying a voltage independently from the upper stage biprism and the lower stage biprism, moving the upper stage biprism and the lower stage biprism, and rotating electrodes of the biprisms to thereby deflect electron beams in the same electro-optic plane including an optical axis to or away from which the two biprisms deflect the electron beams.

13. The interferometer according to claim 1 further comprising:

the upper stage biprism;

the lower stage biprism; and

a third biprism is positioned on the second image plane of the electron source on the optical axis, the third biprism being positioned on a third plane parallel to planes on which the upper stage biprism and the lower stage biprism are placed, wherein the third biprism is capable of capable of applying a voltage independently from the upper stage biprism and the lower stage biprism, moving the upper stage biprism and the lower stage biprism, and rotating electrodes of the biprisms to thereby deflect electron beams in the same electro-optic plane including an optical axis to or away from which the two biprisms deflect the electron beams; and

a fourth biprism positioned on a second image plane

of the specimen on the optical axis, the fourth biprism being positioned on a forth plane parallel to each of the three planes, wherein the fourth biprism is cable of applying a voltage independently from the upper stage biprism, the lower stage biprism, or from the third biprism and rotating electrodes of the biprisms to thereby deflect electron beams in the same electro-optic plane including an optical axis to or away from which the three biprisms deflect the electron beams.

14. An interferometer comprising:

a light source;

a condenser lens system for condensing a light beam emitted from the light source to a specimen;

a specimen holder for holding a specimen irradiated by the light beam;

a lens system for focusing an image of the specimen;

a device for observing or recording the specimen image;

an upper stage optical biprism positioned on a plane perpendicular to an optical axis of a light beam from the light source and at an image plane of the specimen formed on the downstream side of the position of the specimen, in the traveling direction of the light beam, on the optical axis of a light beam from the light source, the upper stage optical biprism having a beam stopper provided on a central

ridge portion or on the rear side of the ridge; and

a lower stage optical biprism positioned on the downstream side of the light beam on the optical axis of the upper stage optical biprism through one or a plurality of the lenses and on a plane parallel to the upper stage biprism;

wherein each of the upper stage and the lower stage biprisms is capable of moving and rotating the electrodes independently, and each of the upper stage and the lower stage biprisms is capable of exchanging with the other having a different deflection angle for a light beam to control the deflection angle of the light beam.

15. The interferometer according to any of claims 1 to 13 comprising the upper stage biprism and the lower stage biprism, or the third or fourth biprism,

wherein a plurality of parallel straight lines is capable of being drawn in batch on an material placed on an observation/recording plane of the optical system, or on a plane optically equivalent to the observation/recording plane.

16. The interferometer according to any of claims 1 to 13,

wherein, among the upper stage biprism and the lower stage biprism, the third biprism, and the fourth biprism, all of the biprisms to be used rotate about an optical axis

of an electron beam on a plane perpendicular to the optical axis, while keeping the deflection plane of the electron beam constant, and an electron beam is capable of irradiating multiple times to a material placed on an observation/recording plane of the optical system or on a plane optically equivalent to the observation/recording plane.

17. The interferometer according to claim 15 or claim 16, wherein the light source is a source emitting a light beam, and each of the biprisms is an optical biprism.